Walleye Restoration in the Milwaukee River Estuary
Open House
November 30, 2004

Lake Michigan Creel Results

The stocking of walleyes in the Lower Milwaukee River and Harbor for the purpose of rehabilitation has been controversial. This controversy is especially pointed when it comes to detecting if there are any predation effects of walleye on stocked salmon and trout. As part of the rehabilitation plan, Wisconsin DNR stocked walleyes up the Milwaukee River in fall and worked with a local club to stock chinook salmon in harbor net pens in the spring to protect these small fish from possible predation by walleyes. Chinook salmon were chosen for the net pens because these fish are the smallest of all the stocked salmon and trout and would show the effects of predation more readily than other much larger stocked fish. Results from the chinook salmon predation study (WDNR 2004) showed that walleyes are physically separated from the chinooks at the time of their stocking and that few chinook were eaten by walleye. Another way to look at the effects of stocking walleye into a system that also is stocked with over 425,000 salmon and trout annually is to analyze the harvest and other parameters from the creel survey.

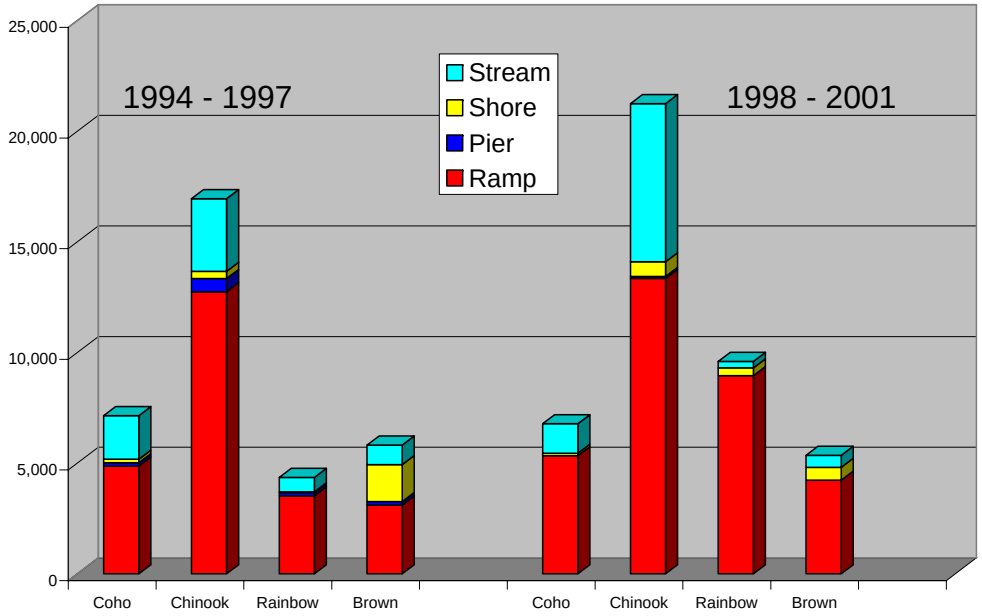
The Wisconsin DNR conducts an annual creel survey of anglers on Lake Michigan and Green Bay to generate an estimate of angler effort and harvest for all major game species. To analyze the data from the creel survey we used the following parameters. We grouped the data into 2 time periods – 1994 through 1997 and 1998 through 2001. This represents a time period before and after walleyes would have a mortality impact on the stocked salmon and trout. The early period includes harvest of fish from salmon and trout stockings prior to the first walleye stocking (1995) while the late period includes the harvest of fish from salmon and trout stockings during the first two experimental walleye stockings (1995 and 1996). In addition, we limited the data to include only August through October each year. We did this so that the majority of fish harvested would be mature fish homing back to Milwaukee to spawn. Data include information from all 4 fishery types – ramp, pier, shore and stream including harvest, harvest rate, directed angling effort and species specific harvest rate parameters.

The harvest and harvest rate of the four major salmon and trout species were very similar between the 2 time periods. About 17,000 chinook (0.13 fish per hour) were harvested in the early time period compared to over 20,000 (0.16 fish per hour) in the late period. This pattern was also seen for rainbow trout. Coho salmon and brown trout were harvested slightly more and had higher harvest rates in the early period compared to the late.

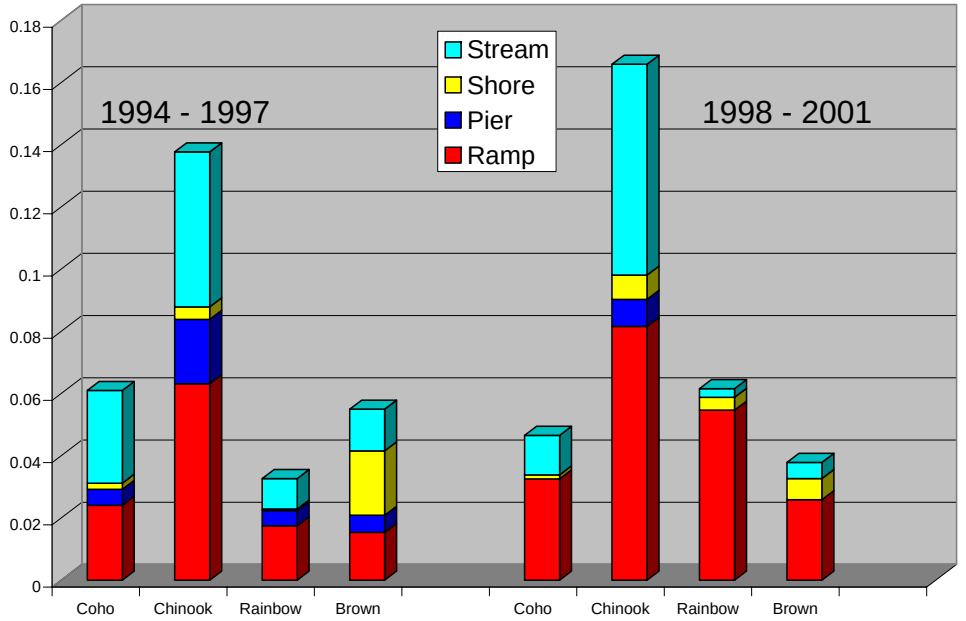
Directed angling effort is a measure of the number of hours spent by anglers specifically targeting a particular species. In both the early and late time periods, Lake Michigan anglers appear to be targeting the salmon and trout at the same levels (~250,000 hours). The majority of the effort is concentrated in the ramp fishery type regardless of species. Species specific harvest rates measure the number of fish harvested hour using the directed angling effort from the previous figure. In general, the species specific harvest rates were similar between the two time periods and were higher for stream anglers compared to the other fishery types.

In summary, results from the creel survey analyzing the data from the two time periods, one before and one after walleyes would have had a mortality impact on stocked salmon trout, showed very little difference. All four parameters were similar between the periods. These results suggest that for the late time period stocked walleyes have not appreciable added to the mortality of stocked salmon and trout when compared to results from the early time period.

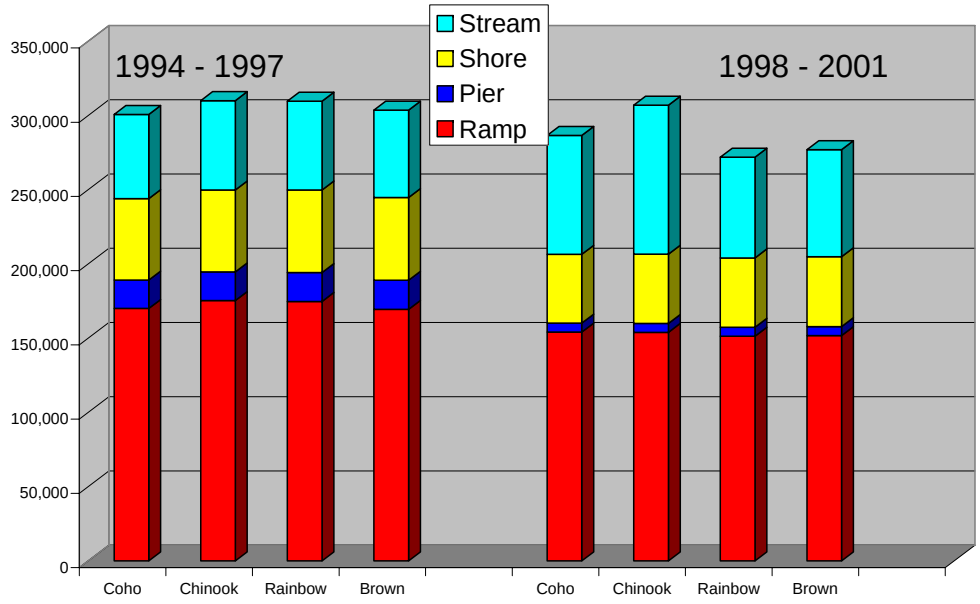
Harvest by species for Milwaukee County



Harvest Rate by species for Milwaukee County



Directed Angling effort by species for Milwaukee County



Species specific harvest rate for Milwaukee County